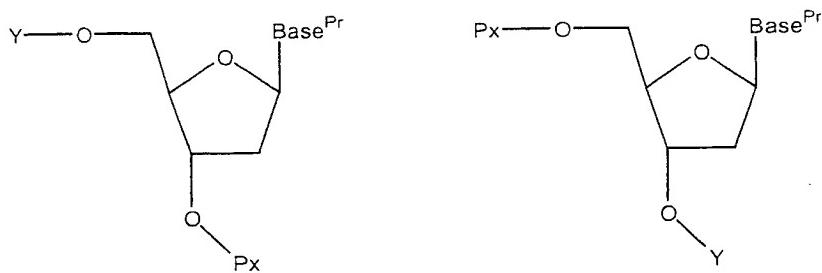




Figure 1A



Px = phosphoramidite, H-phosphonate or phosphate

Y = one of the general structures in Figures 1B-1I ( $R_1$  = -H, alkyl or aryl):

Figure 1B

o-nitrobenzylthioethyloxycarbonyl (NBTEOC)

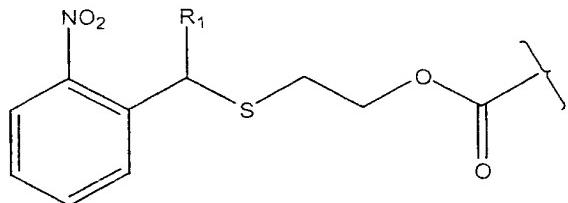
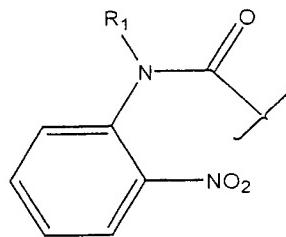


Figure 1C

o-nitrophenylaminocarbonyl (NPAC)

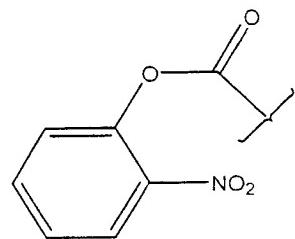


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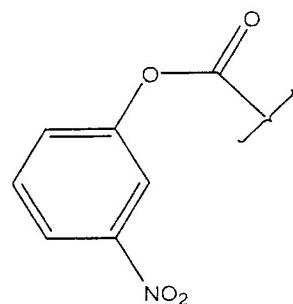
**Figure 1D**

o-nitrophenoxy carbonyl (N2POC)



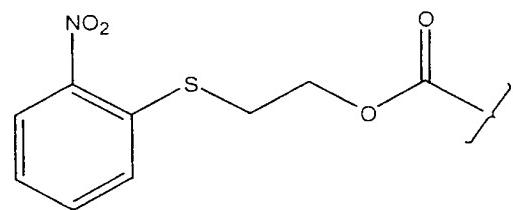
**Figure 1E**

m-nitrophenoxy carbonyl (N3POC)



**Figure 1F**

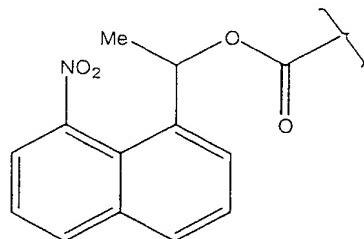
o-nitrophenylthioethoxy carbonyl





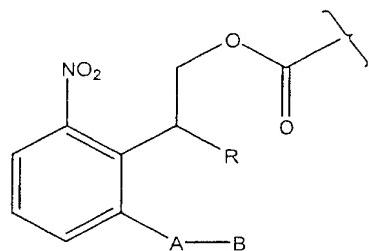
**Figure 1G**

$\alpha$ -methyl-8-nitronaphthylmethoxycarbonyl (MeNMOC)



**Figure 1H**

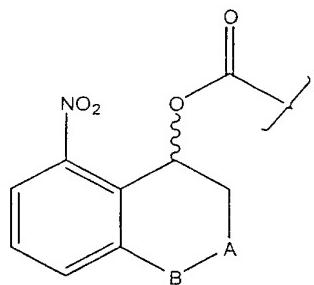
6-substituted 2-(o-nitrophenyl)-2-propyloxycarbonyl (6NPPOC)



A = O, S, N-alkyl, N-aryl,  $(\text{CH}_2)_n$ , where  $n = 0$  to about 3  
B = aprotic weakly basic group (e.g., N-alkylimidazole)

**Figure 1I**

cyclic o-nitrobenzyloxycarbonyl

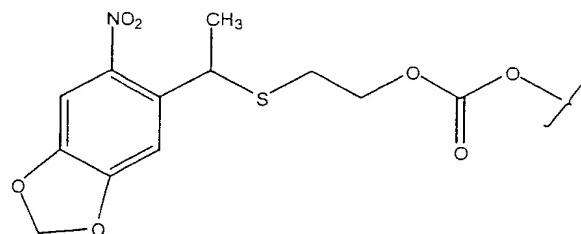


A = O, S, N-alkyl, N-aryl,  $(\text{CH}_2)_n$ , where  $n = 0$  to about 3  
B = aprotic weakly basic group (e.g., N-alkylimidazole)

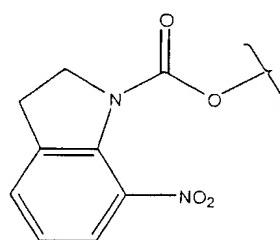


Figure 2A

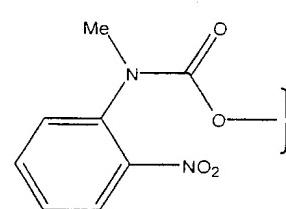
TEMPOC



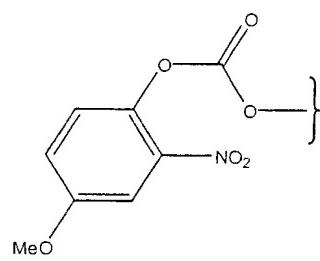
NIOC



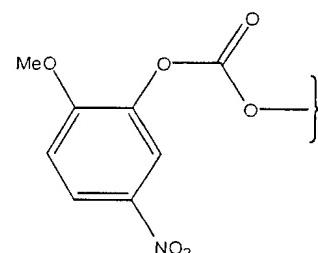
NAMOC



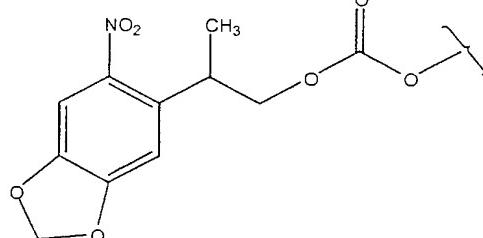
MeN2POC



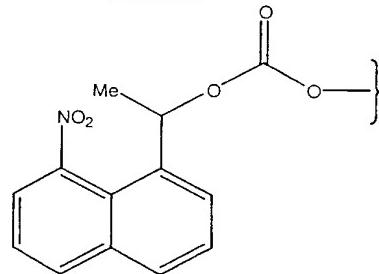
MeN3POC



NP2POC



NNEOC



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Docket/App No.: 2719.2001-000  
Title: Synthesis of Oligonucleotide Arrays...  
Inventors: Glenn H. McGall

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**Figure 2B**  
**Coupling Efficiency Data**

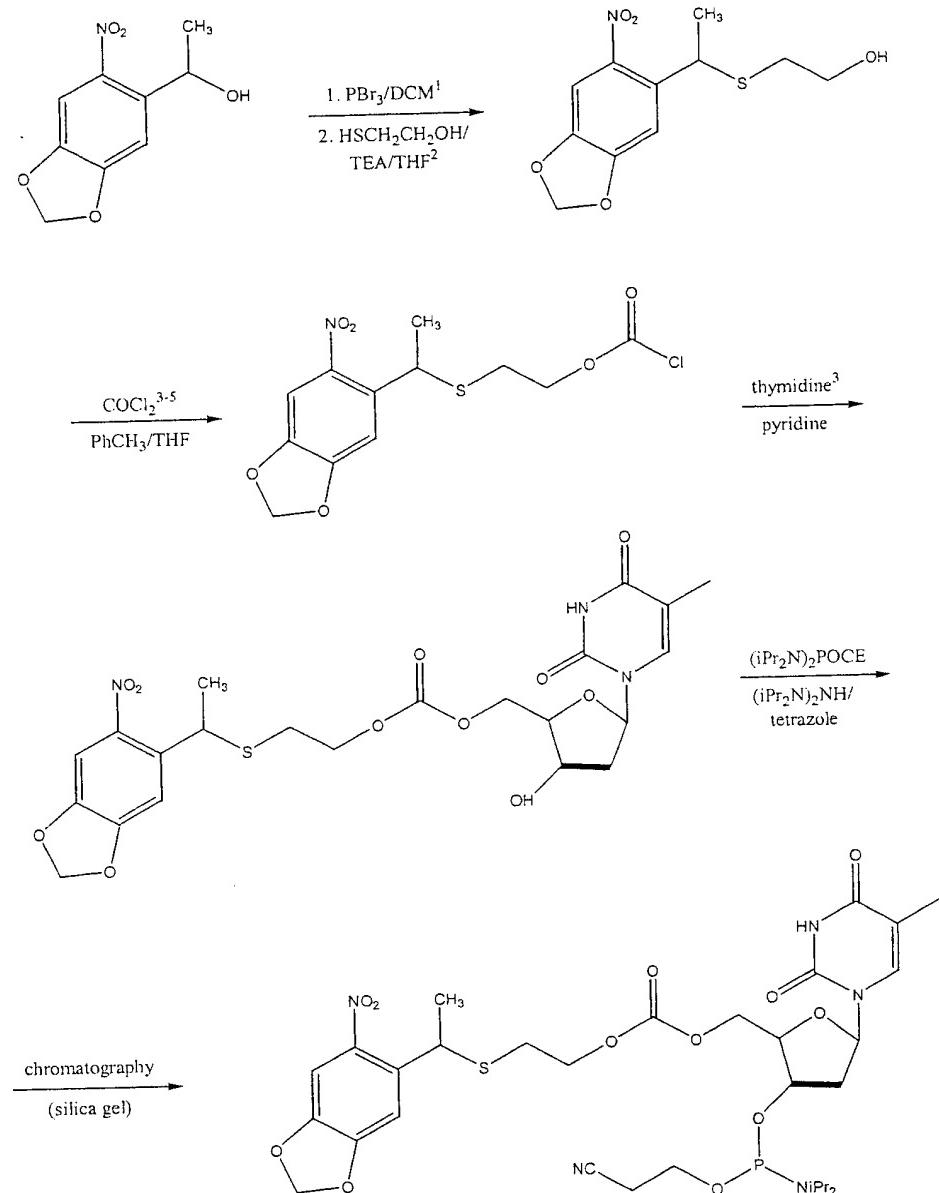
Stepwise yield	photolysis conditions
about 88 %	nonpolar solvent
about 85 %	MeOH
95 %	DMSO
94 %	Nucleophilic solvent (MeOH)
about 80 %	Nucleophilic solvent (MeOH)
about 75 %	Nucleophilic solvent (MeOH)
90 %	basic solvent (1 % NMI/DMSO)
96 %	DMSO



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Figure 3

5'-TEMPOC-T-Phosphoramidite



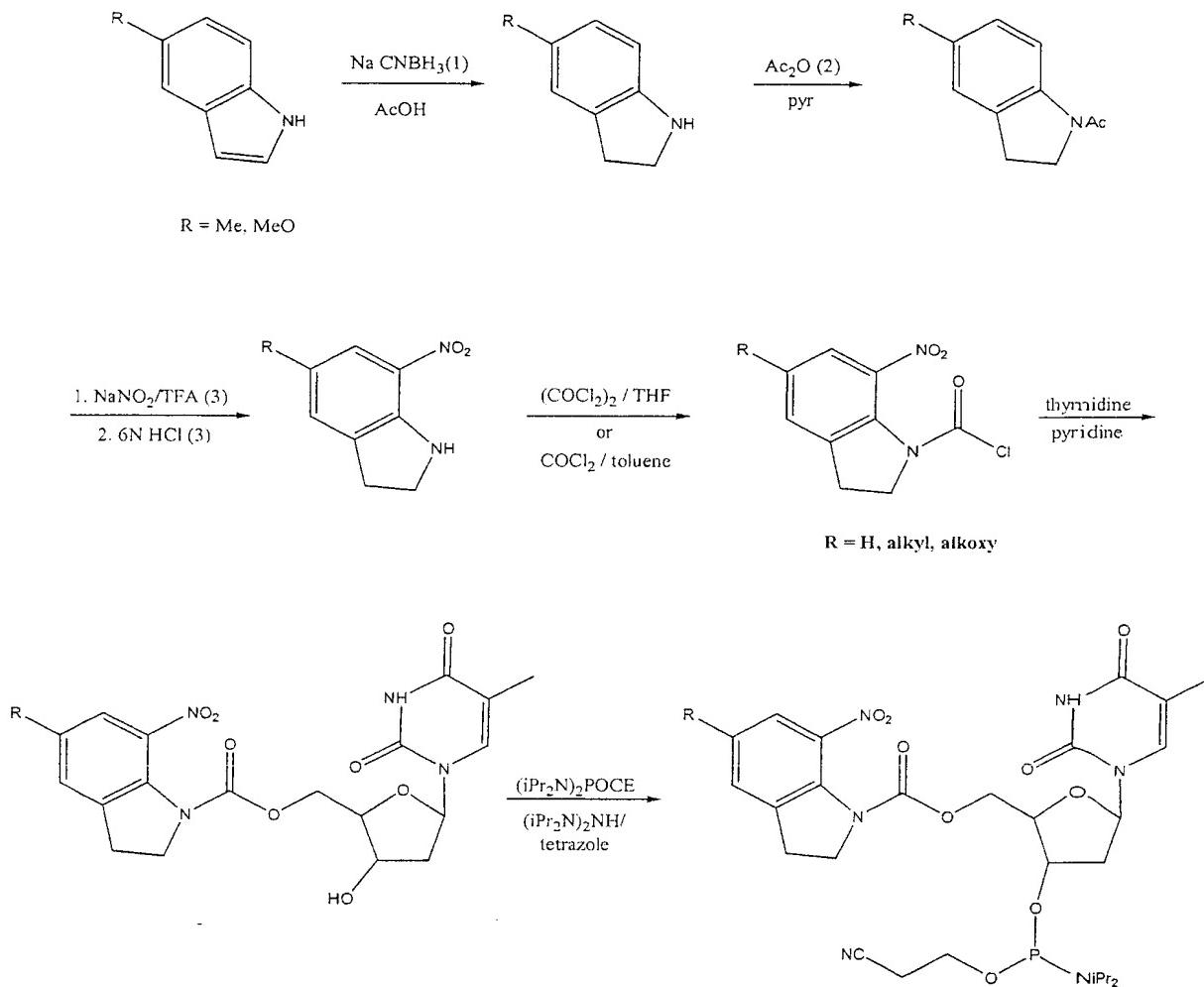
1. Dyer, et al. JOC **64**: 7988 (1999)
2. Tetrahedron Lett., **38**(52), 8933-4 (1997)
3. McGall, et al. JACS **119**: 5081 (1997)
4. Triphosgene may work equally well for this step.
5. Chloroformate can probably be used without purification.



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Figure 4

Synthesis of NINOC-T-CEP



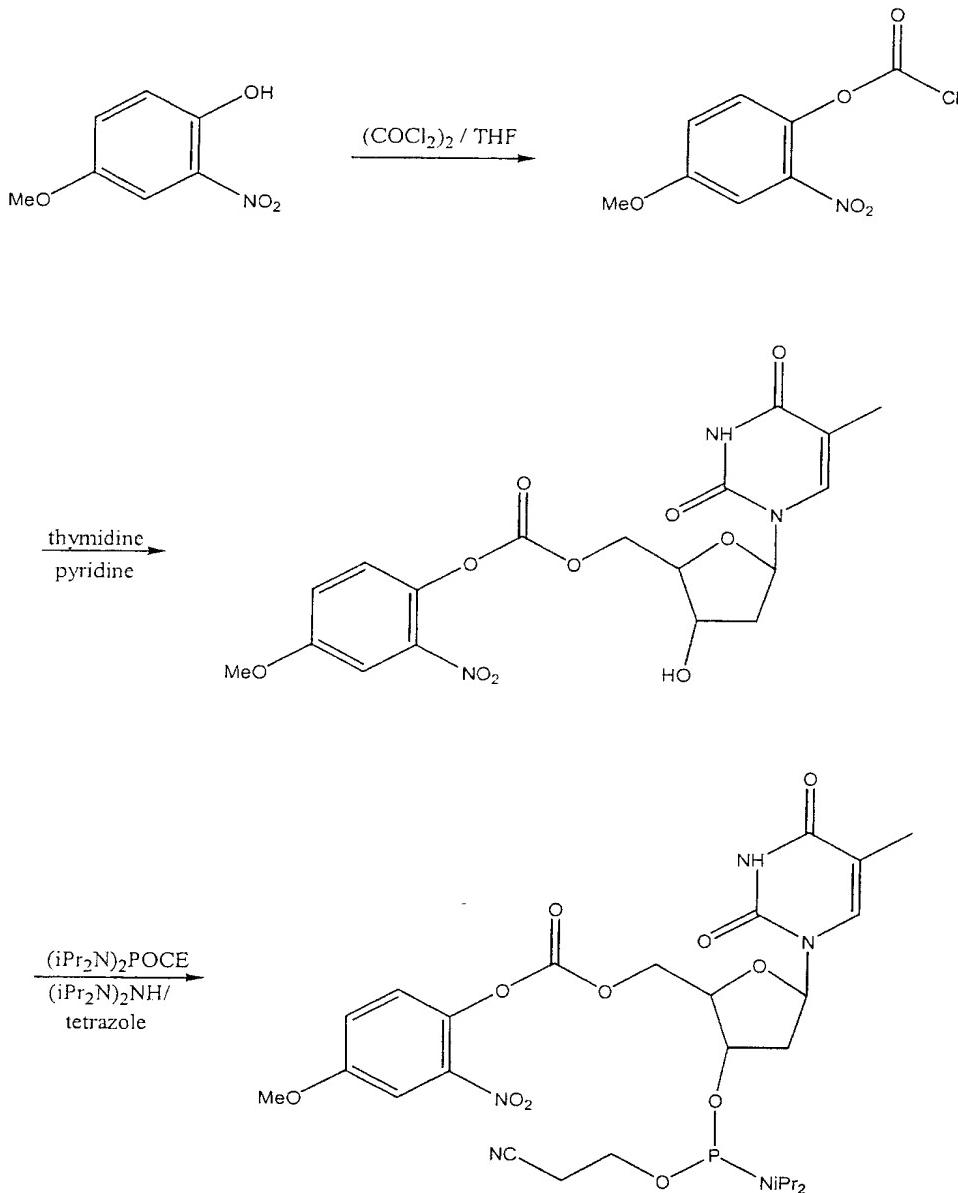
1. Bromridge, et al. (1998) *J. Med. Chem.* 41: 1598.
2. (i) Brooker, L.S., et al. (1953) *US Pat.* 2,646,430; (ii) Boekelheide, et al. (1954) *J. Org. Chem.* 19: 504.; (iii) Bennet, et al (1941) *J. Chem Soc.* 74: 244.
3. Mortensen, et al. (1996) *Org. Prep. Proc. Int.* 28: 123.



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Figure 5

Me2NPOC-T-CEP



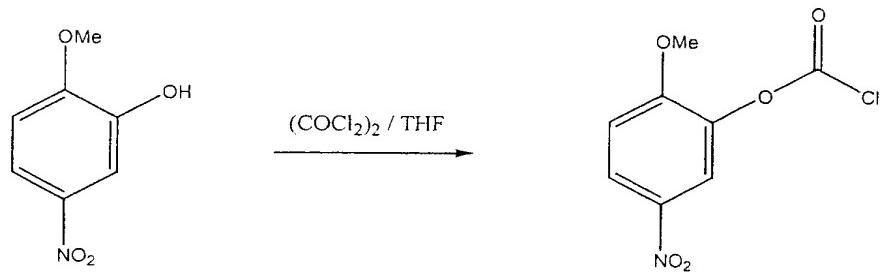


Docket/App No.: 2719.2001-000  
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Inventors: Glenn H. McGall

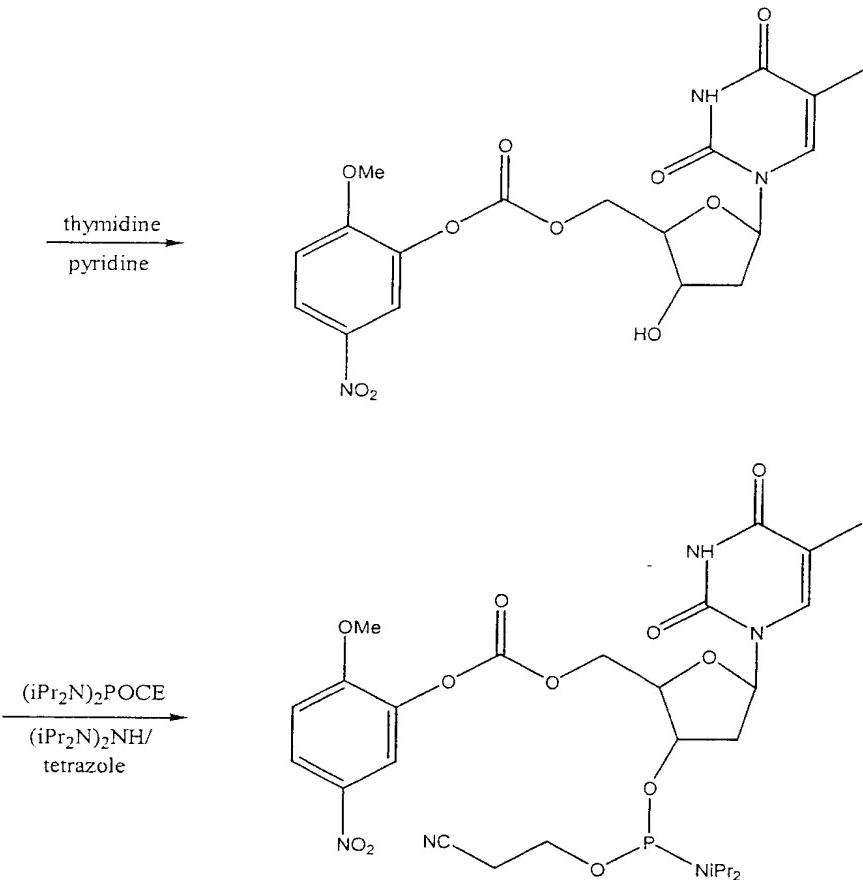
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Figure 6

Me<sub>3</sub>NPOC-T-CEP



(ALH 32,927-4)

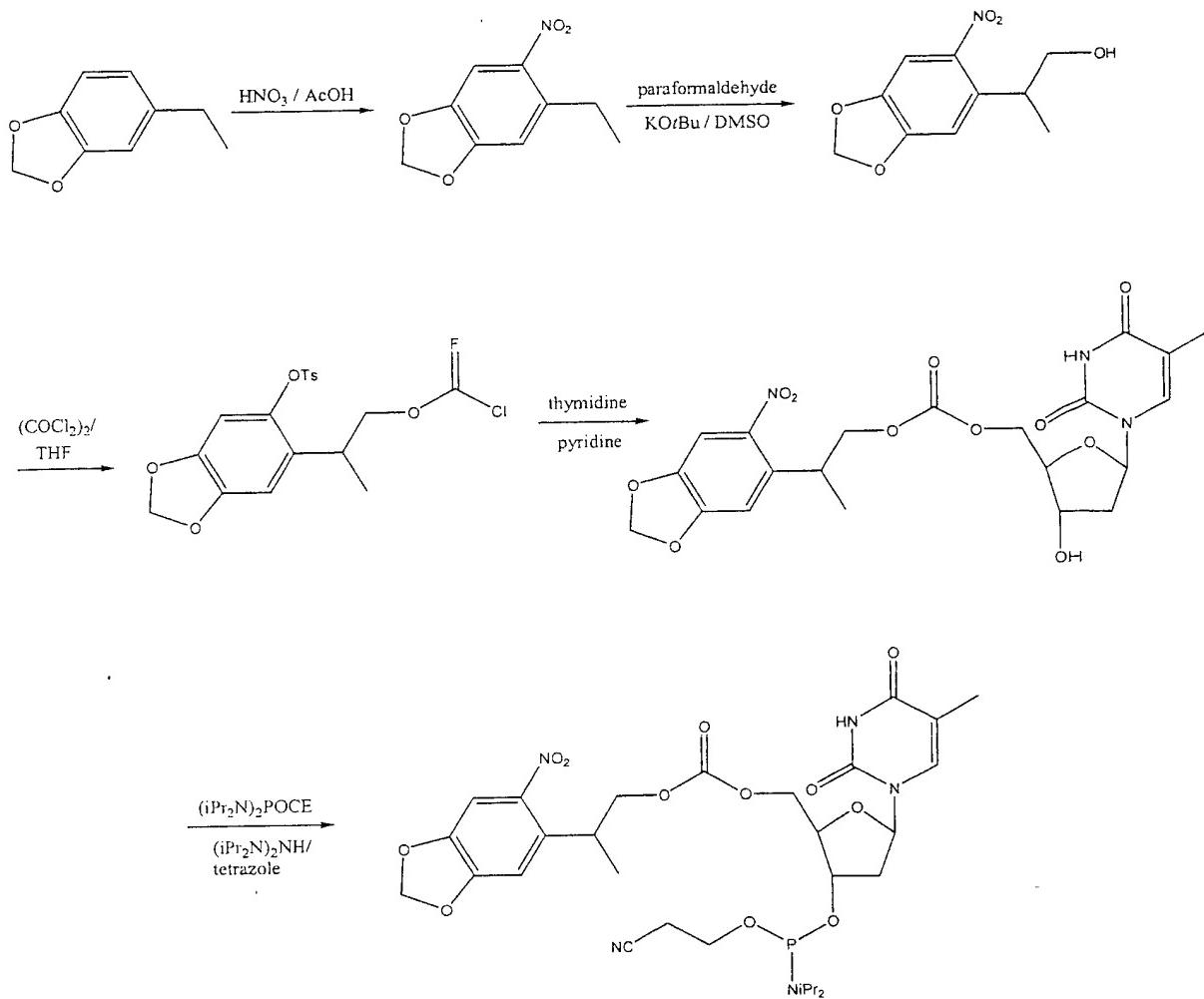




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Figure 7

NP2POC-T-CEP





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Figure 8

NNEOC-T-CEP

